

Sandia National Laboratories Primary Hazard Screening (PHS)

PHS Number: SNL07A00125-004

CINT Rms: 1524, 1525 & 1526 - Metal
Deposition Lab and Associated Chases

I. Signatures (Electronic signature dates shown)

Risk Management Determination

Hazard Classification: **Low**Required Documentation: **PHS with integral HA**Facility/Project Designator: **Radiological Facility**Date Created: **01/16/2010**DOE Order References: **425.1C**Results as of: **02/02/2010**Activity-level PHS: **N**

Author / Technical Review:

I am knowledgeable of the activities and hazards covered by this PHS and, after doing due diligence, the description, notes, identified hazards, analyses, and other information contained in this PHS are complete and accurate.

Author : **Nogan,John**Org: **01132** **01/27/2010 17:54:21**

The description and notes describe and scope the activities performed under this PHS. All hazards have been identified. Questions are answered correctly and, as necessary, rationale or clarification is provided. All hazards in the HA have been analyzed, including the identification of controls for each hazard. I have performed the above reviews and concur that those items are complete and accurate.

ES&H Coordinator : **Starr,Michael**Org: **01131** **CONCUR - 01/28/2010**

Quality Review:

This PHS meets minimum Corporate standards for 1) description/notes and 2) required information. There are no gross inconsistencies. I have performed the above reviews and concur that those items are complete and accurate.

PHS Team : **Costanzo,Jessica Amoret**Org: **04126** **CONCUR - 01/28/2010**

Approver:

The description and notes describe and scope the activities performed under this PHS. All hazards have been identified. Questions are answered correctly and, as necessary, rationale or clarification is provided. All hazards in the HA have been analyzed, including the identification of controls for each hazard. I have reviewed this PHS and concur that its contents are accurate and complete. I will ensure that the requirements and commitments in this PHS are implemented prior to the start of work.

Approving Manager : **Hearne, Sean J.**

Org: **01132**

APPROVE - **02/02/2010**

II. PHS Purpose, Limitations, and Use in Work Planning and Control

Purpose of the PHS

For the scope of work identified, the PHS identifies:

- High-level (primary) hazards (e.g. chemicals, toxic gasses, explosives)
- Some, but not all controls (e.g. PPE, respirators, ventilation, lockout/tagout, and NEPA), please see the limitations section, below for additional information.
- A Hazard Classification, which determines the requirements for additional Safety Basis documents [e.g., Hazard Analysis (HA), Safety Assessment (SA), Safety Assessment Document (SAD), Documented Safety Analysis (DSA) etc.]
- For the hazards and controls identified, the PHS enables the identification and communication of:
 - Requirements documents (such as ES&H Manual chapters, sections, and supplements) that must be reviewed to determine specific requirements applicable to the work
 - ES&H Manual-required training
 - Action and Warning messages that highlight key requirements.

The Hazard Analysis section of the PHS is used to perform a high-level hazards analysis and controls selection for hazards with a Hazard Classification of 'Low' and, optionally, for Standard Industrial Hazards (SIH).

Limitations of the PHS for Use in Activity-level Work Planning and Control

Unless additional information is specifically added, a PHS **does not** contain all of the detail necessary to identify and control hazards at the activity/task level. The reasons for this include:

- PHSs are typically written at the project or work-area level and therefore, do not contain sufficient detail about individual tasks or the hazards/controls associated with them.
- While the PHS provides requirements for the hazards and controls identified, it **does not** provide a comprehensive list of all requirements in the ES&H Manual and related documents. Furthermore, many of the requirements are identified by reference to sections of the ES&H Manual, which must be evaluated for requirements applicable to the specific work being performed.
- It is impractical to ask enough questions to generate the level of detail necessary for activity/task-level hazard identification and control; human analysis must be employed. Consequently, details must be developed by a work planner, including:
 - Specific details about the hazard (e.g. what chemical, which laser, when, under what conditions, and where)
 - Other controls needed, since the only controls automatically identified are the ones with ES&H Manual requirements that result from their use. Important controls, such as access control, interlocks, shielding, monitoring, and personnel qualifications are not identified.
 - Specificity about controls (e.g. type of PPE, ventilation specifications)
 - Details on how and when you implement each control
 - Information on who needs to take what training

Recommended Use of the PHS to Support Activity-Level Work Planning & Control

The information developed in the PHS and any resultant Safety Basis documents should be utilized when performing the subsequent task of activity-level hazard identification, analysis, and control selection, where (1) the major work steps are identified; (2) the hazards associated with each major step are identified and analyzed; and (3) the controls for each hazard are identified and verified to be adequate to protect the involved workers. For the vast majority of work performed at Sandia, the Job Safety Analysis form (SF 2001-JSA) or equivalent is the recommended tool to use for this purpose. The JSA provides a systematic process for a team of involved workers and SMEs to ensure the activity-level work scope is rigorously analyzed to identify all potential hazards and specify appropriate controls for each hazard. Information from the PHS and Safety Basis documents is used as an input in developing the JSA, and the results of the JSA are used to develop TWDs, procedures, or other work instructions as appropriate.

In some cases, the PHS system may be used for activity level hazard identification, analysis, and controls identification, however, the PHS usually must be supplemented with additional information to provide the level of detail necessary to serve this purpose. In these cases, a PHS should be designated as an "Activity-Level PHS" on the PHS General Information page; however, these PHSs will be reviewed during the review and approval process to confirm that they contain the detail necessary to identify the hazards and controls at any stage of the work being performed. If determined to not be adequate, options include (1) revising the PHS to include adequate information; or (2) removing the "Activity-Level PHS" designation, and using a JSA/JSA-equivalent process to perform activity-level hazard identification, analysis, and control selection.

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IV. General Information

Document Status

Question Set Version: **I**

Status: **APPROVED**

Expiration Date: **02/02/2011**

Responsible Organization: **01132**

Radiological Protection Level for this facility or project: **Normal**

Description

Chase 1524's function is to provide space for the return air from room 1525, and to house the gas lines, DI water lines, electrical outlets, vacuum pumps, and exhaust handling system in support of equipment located in room 1525. No laboratory experiments will be performed in this area. This area also contains a dishwasher for labware cleaning, and will provide a means for the storage of labware and portable equipment such as hotplates and ultrasonic cleaners. Routine maintenance activities for certain equipment in 1525 will also be performed in this area.

Room 1525 bay contains deposition systems, wet processing benches and metrology equipment. The electron beam and sputter deposition systems (base pressure 10^{-7} torr) will provide a method for the deposition of high purity materials typically used in lift-off and subtractive etching processes. Additionally, the sputter deposition tool can be configured for sputter deposition of metals or dielectrics. Metrology equipment such as a profilometer will also utilized in the area for thin film step height measurements. The chemical benches will typically be used for standard processing of devices fabricated on variety of substrate materials including silicon. Typical wet processes may include removal of polymers, photoresist and degreasing using solvents, acid or base wet chemical etching of metals, semiconductors and dielectric materials. The rapid thermal annealer (RTA) uses a set of lamps to rapidly heat silicon wafers to temperatures in excess of 1000C in an argon environment. Additionally, forming gas (3% H₂ in nitrogen) can be used in place of argon to prevent oxide formation during annealing.

Chase 1526's function is to provide space for the return air from rooms 1525 and 1527, and to house the gas lines and tool specific gas cylinders, electrical outlets and disconnects, vacuum pumps, compressors, and exhaust handling system in support of equipment located in rooms 1525 and 1527.

Notes from Document or Interview

General Document Notes

Locations

Primary Location

Site : **SSTP**Area : **No Tech Area**Bldg : **518**Room : **1525**

Other Locations

None Entered

Responsible Organization History		
Organization Number	Effective (Starting) Date	This Org. Submitted Document for Review
01132	06/11/2004	Y

V. Identified Hazards

Hazard Name	Hazard Description	Source (Question or Table)
traffic related hazards	traffic related hazards for injury	Required by general corporate business process
common electrical hazards	common electrical hazards	Required by general corporate business process
RGD below LOW hazard classification requirements.	potential for minor injury or illness	QUESTION 1
Use or storage of chemicals	Potential personnel exposure to chemicals & fire protection regulatory requirements	QUESTION 5
Standard industrial levels of chemicals	Corrosive chemical; Potential exposure to skin and eyes.	QUESTION 5e
Exposure to hydrofluoric acid	Potential exposure to skin and eyes	QUESTION 5f
Noncompliant storage, dispensing, or use of flammable/combustible liquids could cause fire/explosion.	fire/explosion hazard	QUESTION 5h
Chemical physical hazards	hazards from fires, reactions, and explosions	QUESTION 5i
Exposed and energized electrical circuits	potential electrical shock or arc	QUESTION 6a
Circuit Breakers or disconnect switches at 50 V or more	potential electrical arc from operating circuit breakers or disconnect switches	QUESTION 6b
Electrical equipment operating at 50V or greater that is not NRTL-approved	unknown hazard potential since items have not gone through the standards, testing rigor, and hazard analysis associated with an NRTL-evaluation	QUESTION 6d(1)
Standard industrial mechanical hazards	potential injury from mechanical forces	QUESTION 7
Portable power tools	potential injury from portable power tools	QUESTION 7b
Standard industrial thermal hazard(s)	Contact with hot or cold objects	QUESTION 9a
Standard industrial pressure hazard(s)	Injury or damage	QUESTION 10
Environmental concern below LOW hazard classification requirements.	potential for regulatory action	QUESTION 15
Wastewater discharge, SIH hazard	potential to exceed permitted amounts	QUESTION 15a
General Wastewater discharge, SIH hazard	potential to exceed permitted amounts	QUESTION 15a(1)
Air discharge, SIH hazard	potential to emit regulated contaminants	QUESTION 15b
Regulated chemicals	potential to emit regulated contaminants	QUESTION 15b(3)
Hazardous Wastes	potential for regulatory action	QUESTION 15d

Hazard Name	Hazard Description	Source (Question or Table)
Exposure to hazardous energy	potential injury to personnel from exposure to hazardous energy	QUESTION C3

VI. Required Actions

Off-Site Requirements:

NONE

Warning Messages:

1. Radiological safety training shall include procedures specific to an individual's job assignment. See CPR 400.1.1.32/MN471016, Radiological Protection Procedures Manual, Chapter 3, "Radiological Training Program," topic 4.3.2, for requirements and guidance. **Comment added: Personnel have completed RAD102 training for these operations.** (QUESTION 1)
2. There are a variety of requirements applicable to chemicals. Refer to the portions of MN471001 ES&H Manual relevant to the activities being performed for requirements. **Comment added: Requirements in Corporate Procedures ESH100.2.IH.1 Maintain a Workplace Free from Chemical, Physical, Biological, and Safety Workplace Hazards, ESH100.2.IH.4 Evaluate and Control Chemical Hazards have been implemented are adhered to by personnel.** (QUESTION 5)
3. Flammable and combustible liquids must be bonded in accordance with the requirements in: The Sandia, "Log of Consultation." **Comment added: The requirements in the "Log of Consultation" will be implemented as needed.** (QUESTION 5g)
4. Any activity inside the Limited Approach Boundary is considered working near energized parts and requires a senior-manager-approved technical work document (TWD). (QUESTION 6a)
5. All operators of the system must be qualified according to the requirements of the Pressure Safety Manual. The Pressure Operator Qualification Form (SF 2001-PQF) is available as an optional tool for documenting the applicable training and qualification requirements for pressure applications. See MN471000, Pressure Safety Manual, Chapter 2, "The Pressure Safety Program," for requirements and guidance on qualification of pressure operators. **Comment added: Personnel have completed the necessary training for operating pressure systems.** (QUESTION 10a)
6. All installers of the system must be qualified according to the requirements of the Pressure Safety Manual. The Pressure Operator Qualification Form (SF 2001-PIQ) is available as an optional tool for documenting the applicable training and qualification requirements for pressure applications. See MN471000, Pressure Safety Manual, Chapter 2, "The Pressure Safety Program," for requirements and guidance on qualification of pressure installers. **Comment added: Pressure installers have completed the necessary training for operations.** (QUESTION 10b)
7. There may also be requirements for waste minimization and documentation of waste minimization efforts/results. Contact the Pollution Prevention Team for assistance with waste minimization. **Comment added: Requirements for waste minimization and documentation of waste minimization efforts/results are implemented as necessary.** (QUESTION 15d)
8. All contractors performing servicing and maintenance on SNL-owned equipment shall perform LOTO when required in accordance with 29 CFR 1910.147 (OSHA Standards for General Industry) and comply with the following two additional requirements: (1) The contractor shall be briefed on SNL-specific LOTO devices and procedures applicable to the equipment under maintenance. (2) The contractor shall inform the SNL equipment owner and other authorized or affected workers of the contractor's energy control procedure/process, including any differences between that process and SNL-specific requirements. (QUESTION C3a(1)a)
9. Equipment specific procedures are required for servicing and maintenance according to the requirements of MN471001, ES&H Manual, Section 4C. (QUESTION C3a(1)b)

Action Messages:

1. Contact your Division ES&H Team for a survey. **Comment added: A radiological survey has been conducted is documented in the Source and Device database.** (QUESTION 1a)
2. Where eyes or body of any person may be exposed to injurious corrosive materials, suitable facilities for emergency quick drenching or flushing of the eyes and body shall be provided within the work area for immediate emergency use. See MN471001, ES&H Manual, Section 6M, "Safety Showers and Eyewashes," for requirements and guidance. **Comment added: An emergency eyewash/shower exists and is tested on a regular basis.** (QUESTION 5e)
3. Contact Site Fire Marshal for an Operational Permit. See the ES&H Direct Access Services List. **Comment added: A Line, Facilities, and ES&H team is identifying corrective actions to address site-wide issues with maximum allowable quantities for hazardous materials. Therefore, Operational Permits are not being issued at this time. Once corrective actions are identified, Operational Permits will be addressed by the Facility Fire Protection Assessment process (AP-230).** (QUESTION 5g)
4. Refer to "Log of Consultation," with a subject of, "Storage, Dispensing, Bonding, and Grounding of Flammable and Combustible Liquids." Contact Fire Protection Engineering for assistance. See the ES&H Direct Access Services List. **Comment added: The requirements in the "Log of Consultation" will be implemented as needed.** (QUESTION 5h)
5. Work on energized electrical circuits is restricted to certain individuals. Ensure only qualified personnel perform work on electrical equipment/systems at SNL. It is the responsibility of the department manager to determine an employee's electrical qualifications. To become qualified to perform electrical work a person shall do the following:
Demonstrate a familiarity, through interview, demonstrated experience (i.e., resume/review) or direct observation, with the hazards of the workplace and the specific equipment to be worked on, as well as any associated ES&H Standard Operating Procedures (SOPs) and Operating Procedures (OPs).
Demonstrate a familiarity, through interview, demonstrated experience (i.e., resume/reference) or direct observation, with electrical maintenance techniques, codes, and other general electrical knowledge.
Have qualifications reviewed and approved by their department manager to ensure they are qualified for a particular job assignment.
NOTE: A person qualified to work with certain equipment may be considered "unqualified" to work on similar equipment without first being advised of any differing hazards involved. (QUESTION 6a)
6. Use a technical work document (TWD) to perform energized work as follows: If the energized work is diagnostic (such as troubleshooting, measuring voltage, etc.), an OP is required. You can find an example of a completed energized electrical OP on the Electrical Safety homepage. This could easily be used as a template for any R&D electrical activity. If the work involves manipulation or reconfiguration of an energized component, an Energized Work Permit (EWP) must be completed. A EWP is needed each time such tasks are to be completed. An EWP may be obtained from the SNL internal web under Corporate Forms EWP-SF2005-EWP (10-2005). (QUESTION 6a)
7. The energized work decision tool shall be used to determine PPE and hazard analysis requirements. Prior to PPE use, workers shall receive site-specific PPE training. See MN471001, ES&H Manual, Section 4L, "Personal Protective Equipment (PPE)" for requirements and guidance regarding site-specific PPE training. See MN471004, Electrical Safety Manual, Chapter 2 "General Requirements," "2.10 Personal Protective Equipment," for requirements and guidance. (QUESTION 6a)
8. Identify PPE, shock approach, and arc flash boundary prior to operating disconnect switches. In addition, personnel must be trained on safe switching techniques/hazards. See MN471004, Electrical Safety Manual, Chapter 2, "General Safety Requirements," sections: "2.1 Electrical Work Requirements - General," "2.2 Qualifications and Training," and "2.10 Electrical Personal Protective Equipment" for requirements and guidance. (QUESTION 6b)
9. All electrical equipment that is not NRTL-listed must be evaluated by an authorized equipment inspector. Contact your ES&H Coordinator for additional information on equipment inspections or to identify an authorized equipment inspector. (QUESTION 6d(1))
10. In California, Contact the Air SME if any of the chemicals being used are listed on the Toxic Air Contaminants Table. **Comment added: No action needed. Operations are in SNL/NM.** (QUESTION 15b(3))
11. As required by the ES&H Manual, Section 19A, "Hazardous Waste Management," Members of the Workforce who are owners or generators of hazardous waste **shall plan** how to control hazards and appropriately manage

their hazardous waste. **Comment added: Requirements in Corporate Procedure ESH100.2.ENV.22 Manage Hazardous Waste at SNL/NM are followed by personnel.** (QUESTION 15d)

Required Training

[Note: This training is a regulatory requirement for one or more people involved in operations associated with identified hazards. Each class may not be required by all people working in the area.] Please note that some training classes are only provided occasionally. Please be sure to allow adequate lead-time for personnel to schedule and complete training.]

Course Code	Course Title	Exclusions	Training Interval (Years)	One-time Training
CHM103	SITE-SPECIFIC CHEMICAL SAFETY TRAINING		2	No
ELC106	R&D ELECTRIC AL SAFETY (> 50 VOLTS)	ELC106, unless not required by the energized work decision tool	--	Yes
ELC106R	R&D ELECTRIC AL SAFETY REFRESHER (> 50 VOLTS)	unless not required by the energized work design tool.	3	No
ELC901	SAFE SWITCHING BRIEFING		--	Yes
ENV112	HAZARDOUS WASTE & ENVIRONMENTAL MANAGEMENT TRAINING	(all locations other than SNL/CA will take ENV112)	1	No
ESH100	ES&H AWARENESS		1	No
ESH200	SAFETY MANAGEMENT		--	Yes
HAZ101	EMPLOYEE BASIC HAZCOM	LAB100 is acceptable for emergency response activities, if already completed	2	No

Course Code	Course Title	Exclusions	Training Interval (Years)	One-time Training
HAZ103	SITE-SPECIFIC HAZCOM		2	No
LAB100	LABORATORY STANDARD INFORMATION AND TRAINING	LAB100 (HAZ101 is acceptable if already taken)	2	No
LAB103	SITE-SPECIFIC LABORATORY SAFETY TRAINING		2	No
LTO210	LOCKOUT/TAGOUT FOR AUTHORIZED WORKERS		3	No
LTO220	ANNUAL LOCKOUT/TAGOUT (LOTO) ROLES & RESPONSIBILITIES FOR AUTHORIZED WORKERS		1	No
MED105HF	HYDROFLUORIC ACID SAFETY		3	No
PPE106	PERSONAL PROTECTIVE EQUIPMENT TRAINING		2	No
PRS150	PRESSURE SAFETY ORIENTATION	for all operators of the system for all installers of the system	--	Yes
PRS150R	PRESSURE SAFETY ORIENTATION REFRESHER		3	No

Course Code	Course Title	Exclusions	Training Interval (Years)	One-time Training
PRS250	ADVANCED PRESSURE SAFETY	for all installers of the system	--	Yes
PRS250R	ADVANCED PRESSURE SAFETY REFRESHER		3	No
RAD219	RADIATION - GENERATING DEVICE CUSTODIAN TRAINING	for both primary alternate custodians	1	No
RAD250	MANAGEMENT OF RADIOLOGICAL OPERATIONS		2	No

Regulatory Requirements

Regulatory and Standards Drivers for this Facility or Lab:

[Note: ES and H Manual sections listed below contain requirements and guidance that pertain to the hazards you have identified in this PHS. It is your responsibility to ensure these requirements have been fulfilled.]

1. (QUESTION 1) CPR400.1.1/MN471001 - ES&H Manual, Section 13C, "Authorization Basis Documentation Process" for SIH, Low, Moderate, and High; unknown hazard potential since item(s) have not gone through the standards, testing rigor and hazard analysis associated with
2. (QUESTION 1) CPR400.1.1.32/MN471016 - Radiological Protection Procedures Manual, Chapter 3, "Radiological Training Program"
3. (QUESTION 1) CPR400.1.1.32/MN471016, Radiological Protection Procedures Manual, Chapter 10, "Radiation Generating Devices"
4. (QUESTION 5) MN471001, ES&H Manual, Section 6D, "Hazard Communication Standard," and Section 6E, "Laboratory Standard - Chemical Hygiene Plan"
5. (QUESTION 5) MN471001 - ES&H Manual, Section 6E, Laboratory Standard - Chemical Hygiene Plan
6. (QUESTION 5) MN471001, ES&H Manual, Section 6U, "Hazardous Material (Chemical and Biological) Inventory"
7. (QUESTION 5e) MN471001 - ES&H Manual, Section 6M, "Safety Showers and Eyewashes"
8. (QUESTION 5f) MN471001 - ES&H Manual, Section 16, "Health, Benefits and Employee Services"
9. (QUESTION 5h) MN471001, ES&H Manual, Section 5A, "Fire Protection Requirements"
10. (QUESTION 6a) MN471001 - ES&H Manual, Section 4L, "Personal Protective Equipment (PPE)" for requirements and guidance regarding site-specific PPE training
11. (QUESTION 6a) MN471004 - Electrical Safety Manual, Chapter 2 "General Safety Requirements," 2.10 "Electrical Personal Protective Equipment," for requirements and guidance

12. (QUESTION 6a(2)) MN471004 - Electrical Safety Manual, Chapter 2 "General Safety Requirements," "2.2 Qualifications and Training"
13. (QUESTION 6d(1)) MN471004 - Electrical Safety Manual, Chapter 4, "Research and Development-Specific Requirements," "4.3 Safe Work Practices"
14. (QUESTION 7a) MN471001 - ES&H Manual, Section 4N, "Industrial Machine and Portable Power Tool Safety"
15. (QUESTION 7b) MN471001 - ES&H Manual, Section 4N, "Industrial Machine and Portable Power Tool Safety"
16. (QUESTION 10a) MN471000 - Pressure Safety Manual, Chapter 2, "The Pressure Safety Program"
17. (QUESTION 10b) MN471000 - Pressure Safety Manual, Chapter 2, "The Pressure Safety Program"
18. (QUESTION 10d) MN471000 - Pressure Safety Manual, Chapter 9, "Documenting the Operational Safety of Pressure Systems"
19. (QUESTION 10e) MN471000 - Pressure Safety Manual, Chapter 9, "Documenting the Operational Safety of Pressure Systems"
20. (QUESTION 10f) MN471000 - Pressure Safety Manual, Chapter 6, "Testing and Evaluating Pressure Systems"
21. (QUESTION 10f) MN471000 - Pressure Safety Manual, Chapter 7, "Verifying the Safe Operation of Pressure Systems"
22. (QUESTION 10f) MN471000 - Pressure Safety Manual, Chapter 8, "Servicing Pressure Vessels and Components"
23. (QUESTION 15a) MN471001 - ES&H Manual, Section 10H, "Discharges to the Sanitary Sewer System"
24. (QUESTION 15a(1)) MN471001 - ES&H Manual, Section 10H, "Discharges to the Sanitary Sewer System"
25. (QUESTION 15b) MN471001 - ES&H Manual, Chapter 17, "Air Emissions"
26. (QUESTION 15b(3)) MN471001 - ES&H Manual, Chapter 17, "Air Emissions"
27. (QUESTION 15d) MN471001 - ES&H Manual, Section 19A, "Hazardous Waste Management" (all locations other than SNL/CA)
28. (QUESTION 15d) MN471001, ES&H Manual, Chapter 20, "Waste Management at SNL/CA" (SNL/CA only)
29. (QUESTION C1) Corporate Procedure: ESH100.2.IH.15, "Control Hazards Using Local Exhaust Ventilation and High Efficiency Particulate Air Filters"
30. (QUESTION C2) MN471001, ES&H Manual, Section 4L, "Personal Protective Equipment (PPE)," "General Requirements for Personal Protective Equipment (PPE)"
31. (QUESTION C2a(1)) MN471001, ES&H Manual, Section 4L, "Personal Protective Equipment (PPE)," "General Requirements for Personal Protective Equipment (PPE)"
32. (QUESTION C3a(1)a) MN471001 - ES&H Manual, Section 4C, "Lockout/Tagout and Administrative Control Locking", also see information at loto.sandia.gov
33. (QUESTION C3a(1)b) MN471001 - ES&H Manual, Section 4C, "Lockout/Tagout and Administrative Control Locking", also see information at loto.sandia.gov
34. (QUESTION C4) MN471001 - ES&H Manual, Section 10B, "National Environmental Policy Act (NEPA), Cultural Resources, and Historic Properties"
35. (Required by general corporate business process) MN471001 - ES&H Manual, Section 4B, "Electrical Safety Practices"
36. (Required by general corporate business process) MN471001 - ES&H Manual, Section 4K, "Traffic Safety"
37. (Required by general corporate business process) MN471001, ES&H Manual, Section 21, "Technical Work Documents (TWDs)"

VII. Related Documents

NEPA Documents	Number	Project End Date
CINT Integration Laboratories (1501, 1504, 1523, 1525, and 1527)	SNA07-0202	

Other Documents	Number	Type	Published Date
Standard Operating Procedure for Working with Hazardous and Particularly Hazardous Chemicals in Center 1100 Laboratories	SOP1100.001 Issue D	SOP	07/23/2008

Permits	Number	Type	End Date
CINT's Authority-to-Construct Permit No. 1725 Actual Date of Initial Start-up	No. 1725	Air	10/11/2004
City of Albuquerque - Wastewater Discharge Permit for CINT	2238A	Water	01/04/2007

VIII. Primary Hazard Screening Worksheets

Version of Questions:I

Operation Type:Facility or Lab

Interview Worksheet:

	Questions	Answers
1	Radiation-Generating Devices (RGDs): Is there a radiation-generating device (RGD)? (Answer this question "no" if the RGDs are registered in storage.)	Yes
1a	Unless exempt, is the RGD <i>registered</i> with the Device Control Program?	Yes
1b	Are there any of the following radiation- generating devices (RGDs) / operations? Place a check mark to the right of all that apply.	
1b(1)	Certified cabinet	No
1b(2)	X-ray Diffraction or fluorescence analysis equipment	No
1b(3)	Other exempt-shielded RGD	No
1b(4)	X-ray generator or particle accelerator (Do your activities include an Accelerator as defined in the Help Text; Please read the help text, since this question has significantly changed.)	No
1b(5)	Other shielded RGD	No
1b(6)	Portable or mobile radiography RGD not using a radioactive source	No
1b(7)	Fixed device with partial shielding	No
1b(8)	Portable analytical device with an open-beam configuration	No
1b(9)	Open Installation not in the preceding classes	No
1b(10)	Unattended Installations	No
1b(11)	Neutron Generator Operations	No
1c	Will anyone enter any of the following areas?	
1c(1)	Controlled Area (unescorted access to do radiological work)	No
1c(2)	Radiation Area	No
1c(3)	High Radiation Area	No
1c(4)	Very High Radiation Area	No
1d	Are routine exposures <i>above</i> 100 <i>mrem</i> per year likely?	No
1e	Could a member of the public be exposed by the operation? (This usually involves portable or mobile radiography operations).	No
1f	Will there be radiological work in a <i>foreign country</i> or territory?	No
1g	Will the activity involve an RGD owned or operated by a party other than Sandia or Sandia's subcontractors?	No
1h	Is there an RGD or a facility for an RGD acquired, built, or modified on or after January 1, 1996-excluding those RGDs classified as inherently safe or a certified cabinet?	No
1i	Will radiation <i>monitoring</i> instruments be used in this activity by MOW other than qualified Radiological Control Technicians?	No

	Questions	Answers
1j	Will scrap metal generated from the project or activity come from a radiological area?	No
2	Radioactive Materials: Is radioactive material present?	No
3	Explosives and Ammunition: Are any explosives or ammunition (including explosive waste) managed, handled, processed, used, or stored?	No
4	Lasers: Do the activities covered by this PHS involve Regulated Laser Activities?	No
5	Chemicals: <i>(Review the Help text before answering this question.)</i> Do the activities involve chemicals?	Yes
5a	Has the Industrial Hygiene Program performed an exposure assessment of all of the current activities involving chemicals covered by this PHS?	Yes
5a(1)	Did the results of the exposure assessment determine that workers are exposed to chemicals above an occupational exposure limit (regardless of respiratory protection)?	No
5b	Do any of the activities include? - Cleanup operations at hazardous waste sites (e.g., environmental restoration [ER] sites - Hazardous waste operations at treatment, storage, and disposal (TSD) facilities - Emergency response or post-emergency response	No
5c	Will activities have, use, synthesize, or liberate unbound engineered nanoscale particles (UNP)?	No
5d	<i>(Review the help text before answering this question.)</i> Do the activities involve storage or utilization of simple asphyxiants?	Yes
5d(1)	In an accidental gas or cryogenic liquid asphyxiant release, could more than 560 cubic feet of asphyxiating gas be released into the work space?	No
5e	Are the hazardous chemicals, hazardous substances, or hazardous waste involved in these activities considered corrosive materials?	Yes
5f	Do these activities involve the use of hydrofluoric acid?	Yes
5g	Do chemicals used in the activities meet or exceed the Operational Permit Amounts for hazardous materials listed in the International Fire Code (IFC) and National Fire Protection Association (NFPA) Guidance? (Please see IFC 105.6.20 Table 25-1 in the Help file for SNL Fire Protection's implementation requirements.)	Yes
5h	Do the activities involve the storage, dispensing, or use of flammable or combustible liquids?	Yes
5i	Do activities involve any of the following? - Flammable chemicals in quantities greater than 5 liters of liquid, 1 kg of solid, or 500 cubic feet of gas (at STP) in any single container or manifolded series of containers - Equipment connected to a house system for flammable gases - Reactive chemicals in quantities greater than 1 liter of liquid, 100 g of solid, or 500 cubic feet of gas in any single container or manifolded series of containers - Oxidizers, other than nitric acid, in quantities greater than 5 liters of liquid, 1 kg of solid, or 500 cubic feet of gas in any single container or process - Pyrophoric chemicals in total quantities greater than 500g - Metal powders in quantities greater than 1 kg	Yes
5i(1)	Is a flammable gas used for purposes OTHER THAN comfort heating or non-process hot water (e.g., restroom use)?	No

	Questions	Answers
5j	Do the activities include a process that involves highly hazardous chemicals at or above twenty-five percent of the Process Safety Management standard threshold quantities, or are there flammable liquids or gases involved in a process in a quantity of greater than 2,500 pounds?	No
5k	Do activities use or store toxic gases in quantities greater than the de minimus quantities listed in the Help file?	No
5l	(Refer to help file to determine if quantities have been exceeded.) Do the activities use or store hazardous chemicals in quantities equal to or greater than the Emergency Management screening threshold quantities?	No
6	Electrical: Do workers conduct any of the following tasks? <ul style="list-style-type: none"> - Work on or near (within the limited approach boundary - 3.5 feet) exposed and energized (greater than or equal to 50 volts) electrical circuits or contact energized electrical circuit parts with tools or test probes? - Operate circuit breakers or disconnect switches operating at or above 50 Volts and 5 mA or more? - Perform non electrical work, but might contact exposed and energized electrical circuits - <i>operating at 50 volts or greater</i> - with equipment or materials, such as ladders, cranes, paint roller extensions, or forklifts? - Use Equipment that operates at 50 Volts or more and is not listed by an OSHA approved Nationally Recognized Testing Laboratory (e.g., UL) and operating at over 50 Volts, including extension cords or power strips? 	Yes
6a	Do workers work on or near (within the limited approach boundary - 3.5 feet) exposed and (greater than or equal to 50 volts) energized electrical circuits or contact energized electrical circuit parts with tools or test probes?	Yes
6a(1)	Are circuit parts storing 10 Joules or more, associated with Marx generators or pulsed power circuits ?	No
6a(2)	Are circuit parts associated with facility type electrical distribution systems ?	No
6b	Do workers operate circuit breakers or disconnect switches operating at 50 Volts or more and 5 mA or more ?	Yes
6c	Do workers perform non electrical work , but might contact exposed and energized electrical circuits - operating at 50 volts or more - with equipment or materials, such as ladders, cranes, paint-roller extensions, or forklifts?	No
6d	Do workers use equipment that operates at 50 Volts or more and is not listed by an OSHA-approved Nationally Recognized Testing Laboratory (e.g., UL), including extension cords and power strips?	Yes
6d(1)	Have all of the non-NRTL-approved electrical equipment or appliances been approved and documented using the Sandia non-NRTL-evaluation process?	No

Questions

Answers

- 7 **Mechanical:** Does the facility or activity involve any of the following hazards or activities?

Yes

- machine shop equipment
- portable power tools
- powder-actuated tools
- centrifuge operations
- forklifts
- motorized hand trucks
- cranes/hoists, miscellaneous lifting devices,
- industrial robots or industrial robotic systems
- operate light or heavy earth-moving equipment
- excavations
- trenches
- floor or wall penetrations
- stored or kinetic mechanical energy that could cause an injury during normal working conditions

Mechanical Hazards		
Source Name	Com'l Available	Modified
Portable power tools	Yes	No
	Location: Site: SSTP, Area: No Tech Area, Building: 518, Room: Location Details: Bay 1525	

Questions

Answers

- 7a Do workers operate machine shop equipment? No
- 7b Do workers operate portable power tools? Yes
- 7c Do workers operate powder-actuated tools (also known as explosive-actuated fastening tools)? No
- 7d Does this facility or project activity use centrifuges? No
- 7e Are forklifts used in any operations? No
- 7f Are motorized hand trucks used in any operations? No
- 7g Are overhead cranes/hoists, mobile cranes, miscellaneous lifting devices (shop or gantry crane), or rigging used in any operations? No
- 7h Are industrial robots or industrial robotic systems used in this project or activity? No
- 7i Do workers operate light or heavy earth-moving equipment? No
- 7j Do workers perform or come into close proximity to any of these activities: No
- Excavations
 - Trenches
 - Floor or Wall Penetrations
- 7k Do activities involve stored or kinetic mechanical energy that could cause an injury under normal working conditions? No

	Questions	Answers
8	Nonionizing Radiation: At any time, do activities produce nonionizing radiation (NIR) (excluding lasers)?	No
9	Thermal: Do thermal hazards or thermal stressors exist in the work area?	Yes
9a	Do thermal hazards exist in the work area in such a manner that Members of the Workforce may be exposed under normal conditions or in a foreseeable emergency?	Yes
9b	Do thermal stressors exist in the work area?	No
10	Pressure: Are workers involved in the design, installation, operation, or maintenance of a pressure system (including pressure, vacuum, cryogenic fluid applications)?	Yes
10a	Do personnel function as pressure system operators?	Yes
10b	Do personnel function as a pressure installers?	Yes
10c	Do personnel handle cryogenic fluids, or design, install, or operate cryogenic fluid-handling systems?	No
10d	Does an up-to-date data package or Pressure Safety Analysis Report, reflecting current personnel and system configuration, exist for all systems?	Yes
10e	Do supplier-established pressure ratings exist for all systems and system components?	Yes
10f	Are pressure system (or component) reevaluations being performed according to the requirements of the Pressure Safety Manual? (A common example would be the replacement or retesting of pressure relief valves.)	Yes
11	Noise: At any time, do activities produce potentially high noise levels? <ul style="list-style-type: none"> - Noise that would require you to raise your voice to be heard by another person three feet away (greater than 85 decibels) (potential sources include: compressors, shredders, heavy machinery, saws, grinders, pumps, etc.) - High impulse/impact noise (potential sources include: explosions, gunshots, jackhammers, pressure releases, etc.) - Ultrasound noise (potential sources include: ultrasonic welders, ultrasonic cleaners, and turbo-pumps, fluid flow, etc.) 	No
12	Miscellaneous Hazards: Does the facility or activity involve any of the following hazards or activities? <ul style="list-style-type: none"> - Ergonomic or musculoskeletal stressors - Construction-like activities - Work around asbestos - Ladders - Elevated surfaces (other than ladders) - Commercial underwater diving - animals and hazardous Plants - Aircraft - Airborne objects (other than aircraft) - Firearms - Use of human subjects - Use of Sealed Drums 	No
13	Outside of Manufacturer's Recommendations: Does this work involve the use of equipment, tools, or materials outside of their design specifications or outside of the manufacturer's recommendations? (See Help Text for examples). Please enter each item into the hazard table.	No

Questions

Answers

- 14 **Non-Commercial Hazards:** Does this work involve the use of noncommercial equipment or apparatus (excluding robots, robotics systems, and equipment where the only hazard is a pressure system that has a pressure safety data package)? Please enter each noncommercial piece of equipment into the hazard table. No
- 15 **Environmental Concerns:** Are there any potential **environmental concerns** with this activity that align with the SNL Environmental Management System (EMS) aspects, such as chemical use, fuel or oil storage, waste generation (except sanitary trash), construction activities, disturbance to habitat or protected species, or discharges to the air, ground surface, ground water, or the sewer systems? Yes

Environmental Concerns Hazards

Source Name	Type	Est. Quantity
Solvent Waste (Liquids)	Hazardous Waste	45 gal/yr
	Location: Site: SSTP, Area: No Tech Area, Building: 518, Room: 1525 Location Details: Metal Deposition Lab - Solvent Bench Comments: All solvent waste generated in 1525 will be collected in a single (4.5) gallon carboy that is integrated into the solvent bench. Once the carboy becomes full, the waste product will be transferred to a disposable (5) gallon container for processing through Sandia's hazardous waste handling system.	
Base Waste (Liquids)	Hazardous Waste	8 gal/yr
	Location: Site: SSTP, Area: No Tech Area, Building: 518, Room: 1523 Location Details: Metal Deposition Lab - Base Bench Comments: Base waste generated in 1525 will be introduced in small (<200 ml) or moderate (up to 3 Liters) quantities to the facility's AWN (Acid Waste Neutralization) System for treatment. The AWN system is designed to process both acid and base waste streams.	
Acid Waste (Liquid)	Hazardous Waste	8 gal/yr
	Location: Site: SSTP, Area: No Tech Area, Building: 518, Room: 1525 Location Details: Metal Deposition Lab - Acid Bench Comments: Acid waste which includes certain oxidizers generated in 1525 will be introduced in small (<200 ml) quantities to the facility's AWN (Acid Waste Neutralization) System for treatment. The AWN system is designed to process both acid and base waste streams.	
Solvent Waste (Solids)	Hazardous Waste	25 kg/yr
	Location: Site: SSTP, Area: No Tech Area, Building: 518, Room: 1525 Location Details: Metal Deposition Lab - Solvent Bench Comments: Solid waste with solvent residue from processing operations. This waste will mostly consist of cleanroom wipes, however pipette syringes, small containers and other solvent contaminated materials may also be introduced to this waste stream. Waste material will be collected in a single properly marked waste cans waste and processed through Sandia's hazardous waste handling system.	
Base Waste (Solids)	Hazardous Waste	15 kg/yr
	Location: Site: SSTP, Area: No Tech Area, Building: 518, Room: 1525 Location Details: Metal Deposition Lab - Base Bench Comments: Solid waste with basic residues from processing operations. This waste may consist of cleanroom wipes, cleaning pads and other base contaminated materials. Waste material is collected in a single properly marked waste can and subsequently processed through Sandia's hazardous waste handling system.	
Acid Waste (Solids)	Hazardous Waste	15 kg/yr
	Location: Site: SSTP, Area: No Tech Area, Building: 518, Room: 1525 Location Details: Metal Deposition Lab - Acid Bench Comments: Solid waste with acidic residues from processing operations. This waste may consist of cleanroom wipes, cleaning pads and other base contaminated materials. Waste material is collected in a single properly marked waste can and subsequently processed through Sandia's hazardous waste handling system.	

	Questions	Answers
15a	Wastewater: Are there any wastewater discharges in this activity?	Yes
15a(1)	General Discharges: Are the wastewater discharges of a general nature, such as the washing and rinsing of laboratory glassware and/or process components?	Yes
15a(2)	Categorical Processes: Are the wastewater discharges from a categorical process or does the activity contain a zero discharge categorical process?	No
15a(3)	Will this activity use more than 1,000 gallons of water per day?	No
15b	Air: Are there any air discharges or emissions at this activity?	Yes
15b(1)	Ozone Depleting Substance (ODS): Are there any ODSs at this activity?	No
15b(2)	Will this activity include the installation and or use of combustion equipment ? Combustion equipment includes boilers and internal combustion engines, such as generators.	No
15b(3)	Will this activity include the use of chemicals that could be Clean Air Act Regulated?	Yes
15b(4)	Will this activity involve open-burn activities?	No
15b(5)	Will this activity involve soil disturbance, building demolition, or construction that disturbs soil , including access roads and staging areas?	No
15b(6)	Radionuclide NESHAP: Are there any radionuclide air discharges or use of radionuclides in gaseous form or at elevated temperatures at this activity?	No
15c	Radioactive Waste: Will this activity generate any radioactive waste, or will Members of the Workforce be required to handle radioactive waste?	No
15d	Hazardous Waste: Will this activity generate any hazardous waste, or will Members of the Workforce be required to handle hazardous waste?	Yes
15d(1)	Less-Than-90-Day Accumulation Area: Will this activity store any hazardous waste in a less-than-90-day accumulation area ?	No
15d(2)	Acutely Hazardous Waste: Will this activity generate any acutely hazardous waste ?	No
15d(3)	Waste Containing Mercury: Will this activity generate any waste containing mercury (e.g., switches, thermometers, manometers, elemental mercury (Hg), or mercury compounds [e.g., mercuric oxide (HgO)], etc.)?	No
15e	Mixed Waste: Will this activity generate any mixed waste , or will Members of the Workforce be required to manage mixed waste?	No
15f	Infectious / Biohazardous Waste: Will this activity generate any infectious or biohazardous waste, or will Members of the Workforce be required to handle infectious or biohazardous waste?	No
15g	Radioactive Contamination: Will this activity be conducted in an area for which a reasonable potential exists for introducing radioactive contamination or causing activation of material that may become waste?	No
15h	Material or Waste of Unknown Origin: Will this activity require handling material or waste of unknown origin?	No
15i	Fuels and Oil Storage: Does this activity use a fuel or oil storage container capable of containing 55 gallons or more?	No
15j	Discharges to Ground Surface: Does this activity have a potential for any discharges to the ground surface ?	No
15k	Improvements/modifications to structure/building exteriors and landscaping: Will this project involve activities that require modifications to the exteriors of structures and buildings or modification to existing landscape, including removal of vegetation?	No

	Questions	Answers
15l	Disturbance to habitat or protected species: Will this project involve activities that will disturb habitat or protected species, including wildlife management and outdoor projects or testing activities?	No
16	Packaging and Transportation of Hazardous Materials: Will any activities covered by this PHS involve the packaging and transportation of hazardous material (including explosives or radioactive material)?	No
17	Fire Protection Concerns: Will the activity include any of the following? <ul style="list-style-type: none"> - Members of the Workforce modifying in any way any fire suppression or life safety system (fire rated walls, fire doors, fire sprinklers, fire alarm devices, fire extinguishers, or means of egress)? - Members of the Workforce performing hot work in association with this facility or project activity? 	No
18	Biological Materials: <i>(see Help text before answering this question.)</i> Do activities involve the use of or potential exposure to biological materials?	No
19	Confined Spaces: Are confined spaces present in the work area?	No
20	Beryllium: Do operations include any activities that? <i>(Review the Help text before answering this question)</i> <ul style="list-style-type: none"> - Use or handle beryllium, beryllium-containing alloys or beryllium oxides? - Create or work with beryllium ceramics? - Handle waste potentially-contaminated with beryllium or waste containing beryllium? - Perform decontamination of beryllium contamination? - Entail work in a beryllium contaminated building or area? - Apply abrasive or destructive methods to metal objects, articles, weapon components or bar stock, potentially containing beryllium? - Use non sparking tools containing beryllium? 	No
21	Other Hazards: Are there any: <ul style="list-style-type: none"> - Hazards that have not been adequately addressed in other questions. (e.g., polar bears, foreign travel, specific chemical hazards, natural hazards [e.g., wind, excessive water, radon, or overhead trees]), or - Hazards of unknown magnitude (e.g., emergency response, hazards encountered by roving personnel) Enter all of these hazards in the User- Specified Hazards table. Enter "Low" as the Hazard Classification for hazards of unknown magnitude, unless the Safety Basis Department has determined otherwise.	No

Controls Worksheet:

	Questions	Answers
C1	Local Exhaust Ventilation: Do the activities covered by this PHS use local exhaust ventilation (LEV) (e.g., laboratory hoods, glove boxes, downdraft tables, "elephant trunks," canopy hoods, paint booths, slot ventilation, portable welding ventilation, etc.)?	Yes
C2	Personal Protective Equipment: Are hazards (e.g., chemicals radiological, electrical, mechanical, thermal, flying particles and/or falling or rolling objects) encountered that are capable of causing injury or impairment in the function of any part of the body through absorption, inhalation, or physical contact?	Yes
C2a	Has a workplace hazard assessment been performed for the activities covered by this PHS?	Yes
C2a(1)	Did the workplace hazard assessment determine that personal protective equipment will be required?	Yes
C2a(1)a	Has the workplace hazard assessment determined respiratory protection is required?	No
C2a(2)	Does the workplace hazard assessment allow voluntary use of respiratory protection?	No
C3	Control of Hazardous Energy (LOTO): Do you have any equipment in your operations that requires any of the following activities? <ul style="list-style-type: none"> - Construction - Installation - Setup - Adjustment - Inspection - Modification - Maintenance - Service - Lubrication - Cleaning - Unjamming - Making adjustments or tool changes 	Yes
C3a	While performing the servicing and maintenance activities identified above, is there potential for injury from the unexpected energization or startup of the machines, equipment, or process from a release of stored energy?	Yes
C3a(1)	Will service or maintenance be done on a machine, equipment, or a process by the Members of the Workforce within your organization ?	Yes
C3a(1)a	Will all service or maintenance be done on a machine, equipment, or a process by the Members of the Workforce within your organization ?	No
C3a(1)b	During the service and maintenance can all the equipment be controlled by cord and plug ?	No
C3b	Are there any activities where control of hazardous energy sources is only necessary for protection of configuration, equipment, or property (i.e., not for personnel protection)?	No
C4	NEPA Compliance: Has this project or activity been reviewed for National Environmental Policy Act (NEPA) compliance?	Yes
C4a	Are all relevant NEPA documents listed in the Documents section of this PHS?	Yes

IX. Hazard Analysis (HA) Section

Hazard Analysis

Source Name or Question: **Question 6d(1)**

Source Reason: **Electrical equipment operating at 50V or greater that is not NRTL-approved**

Hazardous Condition: **Electrocution/Arcs/Fires**

PHS Identified 'Low' Hazard.

Author's Comment:

Cause: System/Component/Equipment Failure

Short circuit to neutral or ground.

Consequence: Minor Mission Disruption/Delay

Loss of power to tool and subsequent shut down.

Mitigation: Active Engineering Control-Other

Properly sized circuit breaker or fuse to open circuit in the event of an overcurrent situation.

Mitigation: Passive Engineering Control-Other

Components and wiring appropriately sized to operate well above the trip point of the overcurrent protection devices.

Author Assessment: Applied Mitigation and Prevention are sufficient.

Preventions/mitigations follow typical NEC guidelines and industry standards.

Consequence: Death [Worker]

Electrocution if the worker should provide a low impedance path through the central nervous system or heart to ground.

Mitigation: Active Engineering Control-Other

Incorporation of UL approved ground fault interrupt circuit protection to outlets within 6' of water sources.

Mitigation: Passive Engineering Control-Access Prevention Barrier (locked door/gate)

Panels with exposed terminals are not easily accessible and require a tool for removal.

Mitigation: Procedural (Monitoring etc.)-Other

Ground fault interrupters are tested for proper operation on a routine basis.

Author Assessment: Applied Mitigation and Prevention are sufficient.

Preventions and mitigations described above follow guidelines established by the NEC and are considered to be normal measures to protect against accidental electrocution.

Consequence: Minor Property Damage

Bench or work station fire.

Mitigation: Passive Engineering Control-Other

Work surfaces and immediate areas surrounding the work surfaces are constructed of metal or in the case of the wet sinks UL 94V-0 rated materials. If a fire were to start, the flame would slowly propagate or completely extinguish. However some of the older benches have areas surrounding the work surface that is constructed of UL 94V-2 materials. A fire extinguishers is located in the general vicinity of the UL 94V-2 constructed bench for added protection.

Mitigation: Passive Engineering Control-Fire Barrier (fire wall/door/coating)

Electrical components and power distribution circuits in the newer wet banches are enclused in an all metal enclosure. In the older bench, the electrical componenets are mounted on an aluminum back plate to prevent the spread of fire. Wiring that travels outside of the electrical enclosure is contained within UL approved PVC liquid tight flexible conduits and components.

Mitigation: Passive Engineering Control-Other

Explosion proof hot plates are used on the work surfaces where flammable materials may be present to prevent sources of ignition in the presents of flammable vapors.

Author Assessment: Applied Mitigation and Prevention are sufficient.

Components and materials of construction follow industry standards that prevent the spread of fire.

Note: 21 hazard analysis(es) were not reported, because no (optional) hazard analysis was performed for them.

X. Supplemental Information

PHS Input

Notes from Interview Questions

Notes from Controls Questions

User Entered Hazard Tables

Environmental Concerns Hazards		
Source Name	Type	Est. Quantity
Solvent Waste (Liquids)	Hazardous Waste	45 gal/yr
	Location: Site: SSTP, Area: No Tech Area, Building: 518, Room: 1525 Location Details: Metal Deposition Lab - Solvent Bench Comments: All solvent waste generated in 1525 will be collected in a single (4.5) gallon carboy that is integrated into the solvent bench. Once the carboy becomes full, the waste product will be transferred to a disposable (5) gallon container for processing through Sandia's hazardous waste handling system.	
Base Waste (Liquids)	Hazardous Waste	8 gal/yr
	Location: Site: SSTP, Area: No Tech Area, Building: 518, Room: 1523 Location Details: Metal Deposition Lab - Base Bench Comments: Base waste generated in 1525 will be introduced in small (<200 ml) or moderate (up to 3 Liters) quantities to the facility's AWN (Acid Waste Neutralization) System for treatment. The AWN system is designed to process both acid and base waste streams.	
Acid Waste (Liquid)	Hazardous Waste	8 gal/yr
	Location: Site: SSTP, Area: No Tech Area, Building: 518, Room: 1525 Location Details: Metal Deposition Lab - Acid Bench Comments: Acid waste which includes certain oxidizers generated in 1525 will be introduced in small (<200 ml) quantities to the facility's AWN (Acid Waste Neutralization) System for treatment. The AWN system is designed to process both acid and base waste streams.	
Solvent Waste (Solids)	Hazardous Waste	25 kg/yr
	Location: Site: SSTP, Area: No Tech Area, Building: 518, Room: 1525 Location Details: Metal Deposition Lab - Solvent Bench Comments: Solid waste with solvent residue from processing operations. This waste will mostly consist of cleanroom wipes, however pipette syringes, small containers and other solvent contaminated materials may also be introduced to this waste stream. Waste material will be collected in a single properly marked waste cans waste and processed through Sandia's hazardous waste handling system.	
Base Waste (Solids)	Hazardous Waste	15 kg/yr
	Location: Site: SSTP, Area: No Tech Area, Building: 518, Room: 1525 Location Details: Metal Deposition Lab - Base Bench Comments: Solid waste with basic residues from processing operations. This waste may consist of cleanroom wipes, cleaning pads and other base contaminated materials. Waste material is collected in a single properly marked waste can and subsequently processed through Sandia's hazardous waste handling system.	

Environmental Concerns Hazards

Source Name	Type	Est. Quantity
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Mechanical Hazards

Source Name	Com'l Available	Modified
Portable power tools	Yes	No
	Location: Site: SSTP, Area: No Tech Area, Building: 518, Room: Location Details: Bay 1525	

PHS Output - Results and Conclusions**Major Safety Concerns**

The hazard classification is: **Low**

The required documentation is: **PHS with integral HA**

The hazard classification is: Low since this Facility or Lab involves:

(QUESTION 6d(1)) unknown hazard potential since items have not gone through the standards, testing rigor, and hazard analysis associated with an NRTL-evaluation

Other Safety Concerns (potential hazard sources) for this Facility or Lab

(Required by general corporate business process) traffic related hazards for injury

(Required by general corporate business process) common electrical hazards

(QUESTION 1) potential for minor injury or illness

(QUESTION 5) Potential personnel exposure to chemicals & fire protection regulatory requirements

(QUESTION 5e) Corrosive chemical; Potential exposure to skin and eyes.

(QUESTION 5f) Potential exposure to skin and eyes

(QUESTION 5h) fire/explosion hazard

(QUESTION 5i) hazards from fires, reactions, and explosions

(QUESTION 6a) potential electrical shock or arc

(QUESTION 6b) potential electrical arc from operating circuit breakers or disconnect switches

(QUESTION 7) potential injury from mechanical forces

(QUESTION 7b) potential injury from portable power tools

(QUESTION 9a) Contact with hot or cold objects

(QUESTION 10) Injury or damage

(QUESTION 15) potential for regulatory action

(QUESTION 15a) potential to exceed permitted amounts

(QUESTION 15a(1)) potential to exceed permitted amounts
(QUESTION 15b) potential to emit regulated contaminants
(QUESTION 15b(3)) potential to emit regulated contaminants
(QUESTION 15d) potential for regulatory action
(QUESTION C3) potential injury to personnel from exposure to hazardous energy

Required Training

[Note: This training is a regulatory requirement for one or more people involved in operations associated with identified hazards. Each class may not be required by all people working in the area.] Please note that some training classes are only provided occasionally. Please be sure to allow adequate lead-time for personnel to schedule and complete training.]

NONE

Results Based On Answers

The results in this PHS were based on the following answers to interview questions:

Q 0 answered: Y; Q 1 answered: Y; Q 1a answered: Y; Q 5 answered: Y; Q 5e answered: Y; Q 5f answered: Y;
Q 5g answered: Y; Q 5h answered: Y; Q 5i answered: Y; Q 6a answered: Y; Q 6a(2) answered: N; Q 6b
answered: Y; Q 6d(1) answered: N; Q 7 answered: Y; Q 7a answered: N; Q 7b answered: Y; Q 9a answered: Y;
Q 10 answered: Y; Q 10a answered: Y; Q 10b answered: Y; Q 10d answered: Y; Q 10e answered: Y; Q 10f
answered: Y; Q 15 answered: Y; Q 15a answered: Y; Q 15a(1) answered: Y; Q 15b answered: Y; Q 15b(3)
answered: Y; Q 15d answered: Y;

Interquestion Dependency Concerns for this Facility or Lab document:

(none)

XI. EOC Concerns

Chemical; Energized Electrical; Energized Mechanical; Energized Systems - RGD; Environmental Concerns;
Other Hazard; Pressure